

Appln No. 10/613,494

Amdt date May 5, 2006

Reply to Office action of February, 8, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An apparatus for driving a plasma display panel, which has a panel capacitor, the apparatus comprising:

a first switch and a second switch being coupled in series between a first power source for supplying a first voltage and a first terminal of the panel capacitor;

a third switch and a fourth switch being coupled in series between the first terminal of the panel capacitor and a second power source for supplying a second voltage;

a first capacitor coupled between a common contact between the first switch and the second switch and a common contact between the third switch and the fourth switch; and

a fifth switch coupled between the first capacitor and a third power source supplying a third voltage,

wherein the third voltage is substantially a middle ground ~~voltage between the first voltage and the second voltage.~~

2. (original) The apparatus of claim 1, wherein the fifth switch is turned on so that the first capacitor is charged to a difference between the first voltage and the third voltage.

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Claim 3. (canceled).

4. (original) The apparatus of claim 1, further comprising:

at least one inductor coupled to the first terminal of the panel capacitor; and

a sixth switch and a seventh switch being coupled in parallel between the inductor and the third power source.

5. (original) The apparatus of claim 1, wherein the first switch, the second switch, the third switch and the fourth switch each have a body diode.

6. (original) The apparatus as claimed in claim 1, further comprising:

a sixth switch and a seventh switch being coupled in series between the first power source and a second terminal of the panel capacitor;

an eighth switch and a ninth switch being coupled in series between the second terminal of the panel capacitor and the second power source;

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a second capacitor coupled between a common contact between the sixth switch and the seventh switch and a common contact between the eighth switch and the ninth switch; and

a tenth switch coupled between the second capacitor and the third power source.

7. (currently amended) An apparatus for driving a plasma display panel, which has a panel capacitor, the apparatus comprising:

a first switch and a second switch being coupled in series between a first power source supplying a first voltage and a first terminal of the panel capacitor;

a third switch and a fourth switch being coupled in series between the first terminal of the panel capacitor and a second power source supplying a second voltage;

a first signal line coupled to a common contact between the first switch and the second switch; and

a second signal line coupled to a common contact between the third switch and the fourth switch,

wherein a voltage between the first signal line and the second signal line is a third voltage, and the first voltage and the second voltage are alternately applied to the first terminal of the panel capacitor, and

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wherein a ground voltage is applied to the first signal line while the second voltage is applied to the first terminal of the panel capacitor.

Claim 8. (canceled).

9. (original) The apparatus of claim 7, further comprising a capacitor coupled between the first signal line and the second signal line and charged to the third voltage.

10. (currently amended) The apparatus of claim 9, further comprising a fifth switch coupled between ~~a third power source supplying a~~ the ground voltage and the first signal line ~~substantially corresponding to a summation of the second voltage and the third voltage,~~ the fifth switch being turned on thereby charging the capacitor to the third voltage in the on state of the fourth switch.

11. (original) The apparatus of claim 7, further comprising a power recovery section including at least one inductor coupled to the first terminal of the panel capacitor, the power recovery section changing a terminal voltage of the panel capacitor using a resonance generated between the inductor and the panel capacitor.

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12. (currently amended) The apparatus of claim 11, wherein the power recovery section further includes a fifth switch and a sixth switch being coupled in parallel between the inductor and a third power source supplying a middle voltage substantially ~~corresponding to a difference of~~ between the first voltage and the second voltage.

13. (original) The apparatus of claim 7, wherein the first switch, the second switch, the third switch and the fourth switch each have a body diode.

14. (original) The apparatus of claim 7, further comprising:

a fifth switch and a sixth switch being coupled in series between the first power source and a second terminal of the panel capacitor;

a seventh switch and an eighth switch being coupled in series between the second terminal of the panel capacitor and the second power source;

a third signal line coupled to a common contact between the fifth switch and the sixth switch; and

a fourth signal line coupled to a common contact between the seventh switch and the eighth switch,

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wherein a voltage between the third signal line and the fourth signal line is the third voltage, and the second voltage is applied to the second terminal of the panel capacitor while the first voltage is applied to the first terminal of the panel capacitor, and the first voltage is applied to the second terminal of the panel capacitor while the second voltage is applied to the first terminal of the panel capacitor.

15. (currently amended) A method for driving a plasma display panel, ~~in which the plasma display panel is driven by alternately applying a first voltage and a second voltage respectively through a first signal line and a second signal line both coupled to a first terminal of a panel capacitor, a first common contact being formed between a first switch and a second switch located on the first signal line and a second common contact being formed between a third switch and a fourth switch located on the second signal line,~~ the method comprising:

~~(a) applying a third voltage between a common contact between a first switch and a second switch formed on the first signal line and a common contact between a third switch and a fourth switch formed on the second signal line, while the first voltage is applied to the first terminal of the panel capacitor by turning on the first switch and the second switch, the third voltage being substantially between the first voltage and the~~

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~~second voltage~~ while a third voltage is applied between the first common contact and the second common contact ; and

~~(b) applying the third voltage between the common contact between the first switch and the second switch and the common contact between the third switch and the fourth switch, while the second voltage is applied to the first terminal of the panel capacitor by turning on the third switch and the fourth switch while the third voltage is applied between the first common contact and the second common contact; and~~

applying a ground voltage to the first common contact while the second voltage is being applied to the first terminal of the panel capacitor.

16. (currently amended) The method of claim 15, wherein ~~applying the third voltage between the common contact between the first switch and the second switch and the common contact between the third switch and the fourth switch, while the second voltage is applied to the first terminal of the panel capacitor by turning on the third switch and the fourth switch, the second voltage to the first terminal of the panel capacitor includes charging the third voltage to a capacitor coupled between the first common contact of the first switch, and the second common contact of the second switch, the contact of the third switch and the contact of the fourth switch.~~

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17. (currently amended) The method of claim 15, ~~wherein:~~  
~~wherein applying a third voltage between a common contact~~  
~~between a first switch and a second switch formed on the first~~  
~~signal line and a common contact between a third switch and a~~  
~~fourth switch formed on the second signal line, while the first~~  
voltage is applied to the first terminal of the panel capacitor  
by turning on the first switch and the second switch further  
includes raising [[ the ]] a voltage of the first terminal of  
the panel capacitor to the first voltage using a first resonance  
generated between an inductor coupled to the first terminal of  
the panel capacitor and the panel capacitor [[ , ]] before the  
first voltage is applied to the first terminal of the panel  
capacitor, and

~~wherein applying the third voltage between the common~~  
~~contact between the first switch and the second switch and the~~  
~~common contact between the third switch and the fourth switch,~~  
while the second voltage is applied to the first terminal of the  
panel capacitor by turning on the third switch and the fourth  
switch, further includes dropping the voltage of the first  
terminal of the panel capacitor to the second voltage using a  
second resonance generated between the inductor and the panel  
capacitor [[ , ]] before the second voltage is applied to the  
panel capacitor.



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18. (currently amended) The method of claim 17, ~~wherein~~  
~~wherein applying a third voltage between a common contact~~  
~~between a first switch and a second switch formed on the first~~  
~~signal line and a common contact between a third switch and a~~  
~~fourth switch formed on the second signal line, while the first~~  
~~voltage is applied to the first terminal of the panel capacitor~~  
~~by turning on the first switch and the second switch further~~  
~~includes injecting current in the inductor through a path of a~~  
~~power source supplying the third a fourth voltage, the inductor,~~  
~~and the second signal line, before the first resonance is~~  
~~generated, and~~

~~wherein applying the third voltage between the common~~  
~~contact between the first switch and the second switch and the~~  
~~common contact between the third switch and the fourth switch,~~  
~~while the second voltage is applied to the first terminal of the~~  
~~panel capacitor by turning on the third switch and the fourth~~  
~~switch, further includes injecting current in the inductor~~  
~~through a path of the first signal line, the inductor, and the~~  
~~power source, before the second resonance is generated.~~